



U.S.D.A. Forest Service Research Note SE-93

September 1968

COMBINED EFFECTS OF DRYING, SURFACING, AND TRIMMING ON GRADE AND VOLUME OF SOUTHERN PINE LUMBER

Abstract. -- This paper shows how the grade and volume of 1-inch and dimension lumber changed due to drying, surfacing, and remanufacturing during a southern pine lumber yield study.

Southern pine lumber is normally graded in a surfaced and seasoned condition. The standard grading rules of the Southern Pine Inspection Bureau state moisture content limitations as integral parts of the various grades.¹ Unsurfaced lumber, however, can be graded under the rules. This provision considers possible removal of imperfections when the piece is dressed to standard thickness.

Yield tables that accompany the southern pine log and tree grade rules developed by the U. S. Forest Service are based on "rough-green grade."^{2 3} How the grade and volume might change due to drying, surfacing, and possible manufacturing becomes important. To measure this change, over 7,700 boards, totaling more than 68,000 board feet, were graded and scaled when green, and again after drying and surfacing. The results of this comparison, for both 1-inch and dimension lumber, are presented in tables 1 and 2.

Some of the lumber grade changes noted in the tables can be explained by remanufacturing: ripping or crosscutting to make two boards from one, end trimming to raise the grade of the board, and surfacing to remove minor defects. Also, a portion of the lumber grade change can be related to the difficulty of grading rough-green lumber. This problem is especially difficult for the inspector when he is grading marginal or line boards.

¹Southern Pine Inspection Bureau. Standard grading rules for southern pine lumber. New Orleans, La., 162 pp. 1963.

²Schroeder, J. G., Campbell, R. A., and Rodenbach, R. C. Southern pine tree grades for yard and structural lumber. Southeast. Forest Exp. Sta., U.S.D.A. Forest Serv. Res. Pap. SE-40, 15 pp. 1968.

³Schroeder, J. G., Campbell, R. A., and Rodenbach, R. C. Southern pine log grades for yard and structural lumber. Southeast. Forest Exp. Sta., U.S.D.A. Forest Serv. Res. Pap. SE-39, 9 pp. 1968.

Table 1.--Grade and volume change of 1-inch southern pine lumber
from rough-green to dry-surfaced

Rough-green		Dry-surfaced ¹							Total
Lumber grade	Volume	B&B	C	D&1C	2C	3C	4C	Volume lost ²	
	<u>Bd. ft.</u>	<u>Percent</u>							
B&B	4,384	56	22	15	--	1	--	6	100
C	7,602	23	33	35	3	--	--	6	100
D&1C	14,491	1	3	64	23	2	--	7	100
2C	19,207	--	1	5	73	15	--	6	100
3C	2,390	--	--	3	26	64	2	5	100
4C	267	--	--	8	21	29	19	23	100
Total	48,341								

¹Dried to approximately 15 percent moisture content.

²Cull and remanufacturing.

Table 2.--Grade and volume change of southern pine dimension lumber
from rough-green to dry-surfaced

Rough-green		Dry-surfaced ¹							Total
Lumber grade	Volume	1D	2D & Special	3D	4D	1 Dense	2 Dense	3 Dense	Volume lost ²
	<u>Bd. ft.</u>	<u>Percent</u>							
1D	1,556	43	36	14	1	1	1	--	4
2D & Special	2,091	6	57	20	5	6	5	--	1
3D	354	2	--	76	17	--	--	--	5
4D	48	--	--	--	100	--	--	--	--
1 Dense	13,666	--	--	--	--	71	24	2	3
2 Dense	2,052	--	--	--	--	8	67	22	3
3 Dense	313	--	--	--	--	13	25	56	6
Total	20,080								

¹Dried to approximately 15 percent moisture content.

²Cull and remanufacturing.

When these tables are applied to yields of rough-green lumber, they will give an indication of how the grade and volume might change when the lumber is processed to a dry-surfaced condition.

This test was conducted at a single mill. Although it contained considerable volume, it reflects the practices of one mill. The amount of grade change and volume loss from drying and processing will vary from mill to mill.

This is one of a group of four publications by the Southeastern Forest Experiment Station pertaining to southern pine log and tree grade lumber recovery studies. The four publications are:

Southern Pine Log Grades for Yard and Structural Lumber, U.S.D.A. Forest Service Research Paper SE-39, by J. G. Schroeder, R. A. Campbell, and R. C. Rodenbach.

Southern Pine Tree Grades for Yard and Structural Lumber, U.S.D.A. Forest Service Research Paper SE-40, by J. G. Schroeder, R. A. Campbell, and R. C. Rodenbach.

Combined Effects of Drying, Surfacing, and Trimming on Grade and Volume of Southern Pine Lumber, U.S.D.A. Forest Service Research Note SE-93, by B. E. Carpenter, Jr., and J. G. Schroeder.

Southern Yellow Pine Tree Overruns and Lumber Distributions, U.S.D.A. Forest Service Research Paper SE-41, by D. O. Yandle.

B. E. Carpenter, Jr., and J. G. Schroeder, Wood Scientists
Forestry Sciences Laboratory
Athens, Georgia